

Electron Configuration Lab

Materials:

8 test tubes

Micropipettes

8 different transition metals dissolved in water

Potassium Hydroxide

***Note: Transition metals with partially filled “d” orbitals usually have color when dissolved in water.

Write the electron configuration for each of the following:

1.

2.

3.

4.

5.

6.

7.

8.

Predict if the following will have color when dissolved in water (yes or no):

1.

2.

3.

4.

5.

6.

7.

8.

Procedure:

1. Obtain 8 test tubes and label them.
2. Add about 1 mL of each chemical to their respective test tube.

Determine which of the following have color when dissolved in water (yes or no):

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

Were any of the 8 chemicals results different than your predictions?
If yes, which ones?

Predict: Which of the following transition metal ions do you think will have color in water: Cr^{3+} , Cd^{2+} , Hg^{2+} , V^{2+}

Add potassium hydroxide to each test tube.

Do the colored precipitates all contain transition metal ions with partially filled “d” orbitals?

What does the color of the solution containing Zn^{2+} suggest about its electron configuration?